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Robert Henry, Associate Professor of Civil Engineering, CEPS travels to South Africa

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UNH Global

Robert Henry

Associate Professor of Civil Engineering - South Africa

First I would like to thank the Center for International Education for helping support my trip to Johannesburg, South Africa. The Girls Winter Camp (<http://firstavenue.co.za/first-avenue-institute-launch/>) (<http://firstavenue.co.za/first-avenue-institute-launch/>) is possible due to a partnership of First Avenue Institute Management and the TechnoLab at the University of Johannesburg. First Avenue Institute Management developed the all-girl camp using the UNH Techcamp Engineeristas program as a model. I am not sure how to express the level of impact this trip has had on myself, the girls in the program, the supporters of the camp (First Avenue Institute Management and the University of Johannesburg) and UNH. I believe that the real impact of my participation will not be felt until the young ladies in the program begin pursuing their undergraduate degrees and careers in engineering and science.

The objective of the Girls Winter Camp is to stimulate and maintain interests in STEM (science, technology, engineering and mathematic) careers for girls from underprivileged areas around Johannesburg. Another objective of the camp is to show young women in a male dominated society



Prof. Henry (back r.) with Girls Winter Camp



The girls at work in a lab

that their talents are valued and greatly needed to solve several critical problems facing South Africa.

Most of the 20 girls attending the 2016 version of the camp are from the Soweto area, attend a school that emphasized mathematics and science and are between the ages of 14 and 18.


The camp starts with a one-week concentrated program that explores many areas of engineering and science. The girls are then provided with continued support (robotics programming, electrical engineering, mathematics and science tutoring, and social issues) for a full year.

I have several roles at the Girls Winter Camp. My background as the director of the several STEM based camps at UNH (UNH Techcamp programs) enables me to advise the organizing team and activities that worked and did not work for our camps with the hope of avoiding many of the missteps UNH made. As an engineering faculty member I am able to provide classroom support for the girls when they are working on specific projects; creating flashing LED circuits, programming autonomous robots and building models of structural systems.



Prof. Henry at South African National Space Agency

The most interesting aspect of my participation was the interactions I had with the girls. Most had not met someone from the United States and many of our conversations focused on language (what we call things), how we live, what our schools are like, is it really that cold in New Hampshire and how much snow we get. Some of the girls tried to teach me some common Zulu words (Eishe and Yhou) with varying degrees of success. They found it interesting to have an old white-haired, white person offering them words of encouragement and showing them faith in their ability to be successful. We also had a running joke both in last year and this year about the weather. June and July is the heart of their winter and had a hard time believing that I would wear shorts and a t-shirt

some days. Their winter temperature is typically between 50 and 65 degrees Fahrenheit and it is a very dry climate. I have attached to the end of this report a scan of the comments the campers made in a book that I provided (view campers' comments )

There are several interesting opportunities that resulted from my visit:

- I am working with the UNH Foundation to raise money to support bringing several girls from the Girls Winter Camp to UNH to participate in our Techcamp programs.
- I am working with another faculty member (Carmela Amato-Wierda) on a grant to support sending a couple of faculty and undergraduate students to South Africa to help support the Girls Winter Camp. This would be an excellent opportunity for UNH students to see how people live (and struggle) in other parts of the world.
- During a visit to the South African National Space Agency (SANSA) I met a couple of individuals that have an interest in working with some of the people in the UNH Space Science Center. I have passed on their information to a faculty member in that program.
- I met an engineer that had developed a gray water system of residential construction. A feasibility analysis of the system would make a excellent capstone project for seniors in the civil engineering program. I have passed the engineer's information on to a faculty member in Environmental Engineering.
- This year the camp hired 3 women engineering undergraduates from the University of Johannesburg. Two of these women are interested in pursuing graduate degrees and would make excellent candidates for our electrical and civil engineering master / Ph.D. programs.

Being part of the Girls Winter Camp for the past two years has been very rewarding. Meeting and interacting with 20 girls from the Soweto area of South Africa has been an eye-opening experience. Through my involvement I have been able to gain a better appreciation for the struggles these girls face in South Africa in addition to the typical hurdles young women face when entering a career in a STEM related field. These girls live in a variety of cultural environments and many of these environments do not feel that women should pursue university degrees and professional careers. The problem is that the future of South Africa is likely to depend on the success of these young ladies in STEM related fields.

In addition to the scanned comments from the girls, the undergraduates and the directors of the camp, here are a couple of references:

- <http://firstavenue.co.za/first-avenue-institute-launch/> (<http://firstavenue.co.za/first-avenue-institute-launch/>) - 2015 Girls Winter Camp
 - there are links to several videos from 2015
 - at the bottom of the page there are several photographs of the girls and me
- Facebook - TechnoLab at UJ
 - There is a Facebook page with information about the 2015 Girls Winter Camp
 - UNH is mentioned several times
 - It has not yet been updated to include the 2016 Girls Winter Camp

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